

AGABUS CHALCONATUS (COLEOPTERA, DYTISCIDAE) NEW FOR SCOTLAND

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The precise distribution of two closely related species of diving beetle, *Agabus chalconatus* (Panzer, 1796) and *A. montanus* (Stephens, 1828) has been in doubt for some time. The two species may be easily distinguished by the male genitalia, the parameres of which possess an apical brush of sucker hairs in *chalconatus*, these being wholly absent in *montanus*. However, the status of these species has been confused. *Agabus montanus* was known for many years as *A. melanocornis* Zimmermann, 1915, named as a variety of *A. chalconatus* and accepted as such by Balfour-Browne (1950). Fery and Nilsson (1993) demonstrated that Zimmermann's taxon was not the species without the sucker hairs on the parameres, and that it was necessary to resurrect Stephens' name *montanus* for this distinct species. Before recognition of the cryptic species pair, the complex was simply known as *chalconatus*, so old published records of this name have limited value. By way of further complication, it should be noted the unjustified emendation *chalconotus* Panzer, 1805 has occasionally been used instead of *chalconatus*.

Agabus chalconatus is a Western Palaearctic species ranging from the United Kingdom to North Africa and Iran. Balfour-Browne (1950) was only able to record it from England north to Mid-west Yorkshire and west to West Gloucestershire; it has subsequently (unpublished data) been found in the Northern Ireland. Foster (1982) reported it from Lazonby Fell, Cumberland, Wynyard Forest, County Durham, and Gosforth Park, South Northumberland; it has been found in North Northumberland by Dr M. D. Eyre subsequently (Figure 1). The known distribution is more or less continuous from there to the south coast. In Wales, it is confirmed only from Whitson, on the Welsh part of the Severn Levels. A record for Skokholm Island (Green, Pearson & Wilkinson, 1951) has been referred to *A. montanus* (Williams & Williams, 1978).

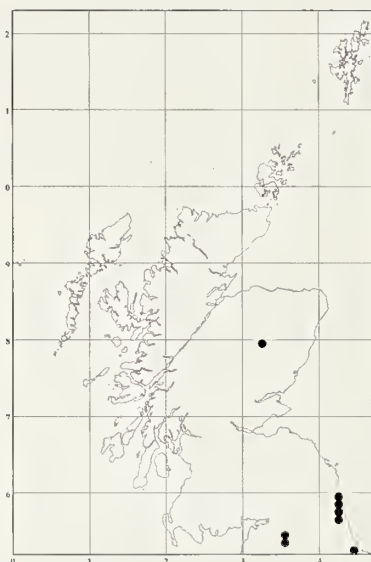


Figure 1. Distribution of *Agabus chalconatus* in northern Britain. Solid circles represent 10 km squares in which the species has been found, all records being from 1980 onwards.

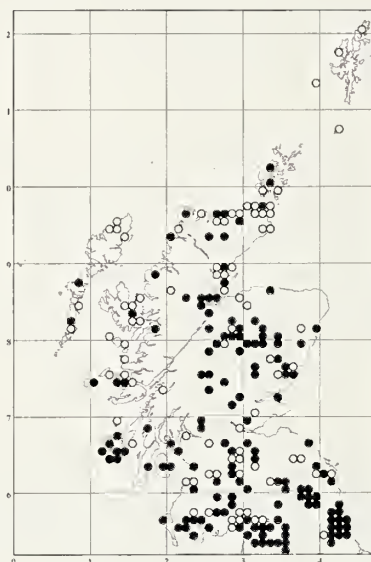


Figure 2. Distribution of *Agabus montanus* in northern Britain. Solid circles represent 10 km squares in which the species has been found from 1980 onwards, open circles representing earlier records.

A. montanus is a common species in Scotland (Figure 2) and much of western Europe, ranging to Sardinia, Sicily and Algeria. It is widespread in Ireland and Wales, but rather more confined in its distribution in England than *A. chalconatus*. The national recording scheme electronic data-base is largely complete for northern Britain and holds, at the time of writing, more than three times as many records of *montanus* (916) as of *chalconatus* (271).

The distributions in northern Europe are rather different. *A. montanus* is absent from Fennoscandia, but is recorded from Denmark and Lithuania (Nilsson & Holmen, 1995). *A. chalconatus*, on the other hand is widely distributed in Denmark, Sweden and is found in central Finland and all three Baltic States; it is, however, absent from Norway. On this basis, one might expect both species to occur in Scotland with, if anything, *A. chalconatus* being the more frequent species.

The purpose of this paper is to note the first record of *Agabus chalconatus* in Scotland, based on a male found just north of Crathie, South Aberdeenshire (VC92) on 20 June 2000. The specimen was netted in a shallow runnel in an area of base-enriched mire with broken cover provided by Scots Pine on the edge of a conifer plantation. A rather flat female specimen was also taken; this specimen had the metallic reflection without bronze reflections but had the apical four antennomeres weakly darkened, leaving its identity in doubt. A bronze female with only the most apical antennomeres distinctly darkened was almost certainly *chalconatus*. *A. montanus* males were taken in the same area, along with *A. congener* (Thunberg) and *A. bipustulatus* (L.).

Many attempts have been made to find *A. chalconatus* in the south of Scotland, and its first occurrence so far north is remarkable. *A. chalconatus* is rated as Nationally Scarce List B in Great Britain; there are records for 92 ten km squares since 1990, the threshold for loss of status being 100. Despite this marginal conservation status in Great Britain, the species merits special consideration within Scotland.

As noted here the species are often found together, particularly in woodland pools. However, *A. montanus* is more typical of acidic, exposed habitats whereas *A. chalconatus* is more frequent in shaded or grassy pools. The most important feature of the pools for both species would appear to be their impermanence and stagnancy.

It is interesting to note that the *montanus* males were teneral whereas the male specimen of *chalconatus* was fully hardened. Both species are regarded as having the type 3 life cycle proposed by Nilsson (1986) whereby semivoltine spring breeders enter the first winter as eggs and the second as adults. Carr and Nilsson (1988), in

studying populations in Kent, found *chalconatus* larvae from November to January, whereas *montanus* larvae occurred from November to April. This suggests that the cycle in *chalconatus* is shorter than in *montanus*, with pupation in late winter or early spring.

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